

WHAT IS CLAIMED IS:

1. A power circuit comprising a transformer,

wherein a first coil, a second coil and a third coil are provided on a primary side of the transformer, a pulse voltage is applied to the first coil from a power source for outputting a power based on the pulse voltage, each of the second and third coils has one of terminals grounded in common and directions in which the coils are to be wound toward the other terminals are opposite to each other and the numbers of winds of the second and third coils are different from each other,

a plurality of coils corresponding to the first, second and third coils on the primary side are provided on a secondary side of the transformer,

the primary side of the transformer is provided with a power switching unit connected in series to the first coil and serving to control an input of a power to the transformer, a first integrating circuit for integrating a voltage output through a diode connected to the other terminal of the second coil in a forward direction, a second integrating circuit for integrating a voltage output through a diode connected to the other terminal of the third coil in a forward direction, and abnormality detecting means for detecting an abnormality of a state of a voltage between the second coil and the third coil based on an output of the first integrating circuit, an output of the second integrating circuit and a predetermined set value,

a pulse voltage is applied to the first coil so that a power is input to the transformer when the power switching unit is brought into a conduction state, and

the power switching unit is brought into a non-conduction state so that the input of the power to the transformer is stopped when the abnormality detecting means detects the abnormality of the state of the voltage between the second coil and the third coil.

2. The power circuit according to claim 1, wherein a first switching unit for controlling an operation of the power switching unit is provided on the primary side of the transformer,

the power switching unit has an input terminal for inputting a current and an output terminal for outputting the current which are connected in series to the first coil, and a control terminal for controlling a conduction state and a non-conduction state which is connected to input a control voltage from the other terminal of the second coil and is connected to a ground through the first switching unit, and

the first switching unit is brought into the conduction state when the abnormality detecting means detects the abnormality, the control terminal of the power switching unit is grounded by the first switching unit set in the conduction state, and the power switching unit is thus brought into the non-conduction state.

3. The power circuit according to claim 2, wherein a Zener diode is provided as the abnormality detecting means, the Zener diode is conducted in an opposite direction when an abnormality

is generated on the state of the voltage between the second coil and the third coil, and the Zener diode conducted in the opposite direction outputs a voltage, thereby bringing the first switching unit into the conduction state.

4. The power circuit according to claim 3, wherein the primary side of the transformer is provided with a second switching unit for controlling the conduction state of the first switching unit,

the second switching unit is connected to be brought into the conduction state when the Zener diode detects the abnormality of the state of the voltage between the second coil and the third coil, thereby outputting a voltage, and

the first switching unit is brought into the conduction state by the second switching unit set in the conduction state.

5. The power circuit according to any of claims 1 to 4, wherein the first switching unit is a transistor.

6. The power circuit according to claim 4 or 5, wherein the second switching unit is a transistor.